

What is claimed is:

[Claim 1] 1. A method of recovering texture information for an error block in a video stream, the method comprising:

locating an error block;

applying an edge detection spatial filter on blocks surrounding the error block to detect texture edges, each block containing a plurality of pixels;

generating filtering results of the plurality of pixels;

identifying first pixels surrounding the error block having texture data above a predetermined threshold value;

selecting first pixels one by one and checking the texture data of pixels extending from the selected first pixel in a plurality of predetermined directions for determining a direction of the texture edge;

accumulating the filtering results of pixels that are located on the texture edge in a selected direction using a corresponding counter;

determining filtering weights based on the accumulation results of each counter corresponding to the predetermined directions; and

reconstructing the texture data of the error block in the spatial domain based on the texture data of surrounding pixels of the error block.

[Claim 2] 2. The method of claim 1, further comprising after checking the texture data of pixels extending from one of the first pixels in a selected direction, setting a flag corresponding to the selected direction to indicate that the selected direction has already been checked.

[Claim 3] 3. The method of claim 2, further comprising skipping checking the texture data of pixels in the selected direction if the flag corresponding to the selected direction has already been set.

[Claim 4] 4. The method of claim 1, wherein the texture data is checked for pixels in eight different directions.

[Claim 5] 5. The method of claim 4, wherein a 22.5-degree angle separates adjacent directions.

[Claim 6] 6. The method of claim 1, wherein selecting first pixels one by one comprises selecting successive first pixels in a row one by one from left to right, and then checking successive rows from top to bottom.

[Claim 7] 7. The method of claim 6, wherein each of the predetermined directions extends below or to the right of the selected first pixel.

[Claim 8] 8. The method of claim 1, further comprising stopping checking the texture data of pixels in the selected direction if a predetermined number of consecutive pixels are not located on the texture edge.

[Claim 9] 9. The method of claim 8, wherein the predetermined number of consecutive pixels is equal to 1.

[Claim 10] 10. The method of claim 8, wherein the predetermined number of consecutive pixels is equal to 2.

[Claim 11] 11. The method of claim 1, wherein the edge detection spatial filter applied to the blocks surrounding the error block is defined by the matrix

$$M = \begin{bmatrix} -1 & -1 & -1 \\ -1 & 8 & -1 \\ -1 & -1 & -1 \end{bmatrix}$$

[Claim 12] 12. The method of claim 1, wherein the predetermined threshold value is equal to 64.

[Claim 13] 13. The method of claim 1, wherein the error block is reconstructed by weight filtering the texture data of the surrounding pixels of the error block.